

CLAIMS

Now, therefore, the following is claimed:

1. A device for producing a composite digital video data stream containing pixel data corresponding to an image to be rendered, the composite digital video data stream being formed from multiple digital video data streams, each of the
5 multiple digital video data streams being provided by a graphics pipeline, each graphics pipeline being configured to process pixel data corresponding to at least a portion of the image to be rendered, said device comprising:

an input mechanism configured to receive the multiple digital video data
10 streams from the graphics pipelines, provide a frame of data corresponding to the image to be rendered, and insert pixel data from the multiple digital video data streams into said frame of data such that, in response to receiving a first of the multiple digital video data streams, said input mechanism provides said frame of data and inserts the pixel data from the first of the multiple digital video data streams into a
15 corresponding portion of said frame of data to form at least a portion of the composite digital video data stream.

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2. The device of claim 1, wherein said input mechanism has a first compositing element and a second compositing element, said first compositing element being configured to provide said frame of data corresponding to the image to be rendered in response to receiving pixel data corresponding to the first of the multiple digital video data streams, said first compositing element being further configured to insert the pixel data corresponding to the first of the multiple digital video data streams into said corresponding portion of said frame of data to form a first compositing digital video data stream, said second compositing element being configured to receive pixel data corresponding to the second of the multiple digital video data streams and said first compositing digital video data stream, said second compositing element being further configured to combine the pixel data corresponding to the second of the multiple digital video data streams and said first compositing digital video data stream to form a second compositing digital video data stream.

3. The device of claim 1, wherein the multiple digital video data streams simultaneously provide pixel data to said input mechanism, the first of the multiple digital video data streams containing three-dimensional pixel data corresponding to the image to be rendered, the second of the multiple digital video data streams containing two-dimensional pixel data corresponding to the image to be rendered, and wherein said input mechanism is configured to combine said two-dimensional pixel data and said three-dimensional pixel data by replacing at least a portion of the pixel data provided by the second of the multiple digital video data streams with at least a portion of the pixel data provided by the first of the multiple digital video data streams.

4 The device of claim 1, further comprising:

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a controller electrically communicating with said input mechanism, said controller being configured to provide a first control signal to said input mechanism, said first control signal containing information regarding which portion of said frame of data corresponds to the pixel data provided from the first of the multiple digital video data streams such that, in response to receiving said first control signal and the pixel data from the first of the multiple digital video data streams, said input mechanism inserts the pixel data from the first of the multiple digital video data streams into said corresponding portion of said frame of data to form at least a portion
10 of the composite digital video data stream.

5. The device of claim 1, further comprising:

an output mechanism electrically communicating with said input mechanism, said output mechanism being configured to receive the composite digital video data
15 stream and provide an output composite video data stream, said output composite video data stream being selectively configurable as any one of an analog video data stream, an analog stereo video data stream, a digital video data stream, and a digital stereo video data stream.

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6. The device of claim 2, wherein said controller is configured to provide a second control signal to said input mechanism, said second control signal corresponding to one of multiple compositing modes, a first of said compositing modes corresponding to each of the graphics pipelines providing pixel data associated with an entire frame of the image to be rendered, the pixel data of each of the graphics pipelines including a coordinate value offset with respect to pixel data of others of the graphics pipelines, said input mechanism being configured to combine the pixel data from the multiple digital video data streams so as to blend color values associated with corresponding coordinate values.

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7. The device of claim 2, wherein said controller is configured to provide a second control signal to said input mechanism, said second control signal corresponding to one of multiple compositing modes, a first of said compositing modes corresponding to each of the graphics pipelines providing pixel data associated with a portion of the image to be rendered, the pixel data of each of the graphics pipelines being super sampled, said input mechanism being configured to average, with a selected weighting, the super-sampled pixel data.

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8. The device of claim 2, wherein said controller is configured to provide a second control signal to said input mechanism, said second control signal corresponding to one of multiple compositing modes, a first of said compositing modes corresponding to each of the graphics pipelines providing pixel data associated with a portion of the image to be rendered, said input mechanism being configured to combine the pixel data from the multiple digital video data streams to form the composite digital video data stream.

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9. The device of claim 5, wherein said output mechanism has a first left channel frame buffer, a second left channel frame buffer, a first right channel frame buffer, and a second right channel frame buffer, said output mechanism being selectively configured to provide said passive digital stereo video data stream by receiving said composite digital video data stream, allocating pixel data from said composite digital video data stream to said first left channel frame buffer, said second left channel frame buffer, said first right channel frame buffer, and said second right channel frame buffer, and simultaneously outputting pixel data from one of said left channel frame buffers and one of said right channel frame buffers.

10. A device for producing a composite digital video data stream containing pixel data corresponding to an image to be rendered, the composite digital video data stream being formed from multiple digital video data streams, each of the multiple digital video data streams being provided by a graphics pipeline, each graphics pipeline being configured to process pixel data corresponding to at least a portion of the image to be rendered, said device comprising:

means for receiving the multiple digital video data streams from the graphics pipelines;

means for providing a frame of data corresponding to the image to be rendered; and

means for inserting pixel data from the multiple digital video data streams into said frame of data such that, in response to receiving a first of the multiple digital video data streams, said means for inserting inserts the pixel data from the first of the multiple digital video data streams into a corresponding portion of said frame of data to form at least a portion of the composite digital video data stream.

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11. The device of claim 10, wherein the first of the multiple digital video data streams contains three-dimensional pixel data corresponding to the image to be rendered, the second of the multiple digital video data streams contains two-dimensional pixel data corresponding to the image to be rendered, and wherein said means for inserting is configured to combine said two-dimensional pixel data and said three-dimensional pixel data by replacing at least a portion of the pixel data provided by the second of the multiple digital video data streams with at least a portion of the pixel data provided by the first of the multiple digital video data streams.

12. The device of claim 10, further comprising:
means for providing a first control signal, said first control signal containing information regarding which portion of said frame of data corresponds to the pixel data provided from the first of the multiple digital video data streams such that, in response to receiving said first control signal and the pixel data from the first of the multiple digital video data streams, said means for inserting inserts the pixel data from the first of the multiple digital video data streams into said corresponding portion of said frame of data to form at least a portion of the composite digital video data stream.

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13. The device of claim 10, further comprising:

means for receiving the composite digital video data stream; and

means for providing an output composite video data stream, said output

composite video data stream being selectively configurable as any one of an analog

5 video data stream, an analog stereo video data stream, a digital video data stream, and

a digital stereo video data stream.

14. A device for producing a composite digital video data stream, the

composite digital video data stream containing pixel data corresponding to an image

10 to be rendered, the composite digital video data stream being formed from multiple

digital video data streams, each of the multiple digital video data streams being

provided by a graphics pipeline, each graphics pipeline being configured to process

pixel data corresponding to at least a portion of the image to be rendered, said device

comprising:

15 logic configured to receive the multiple digital video data streams from the

graphics pipelines;

logic configured to provide a frame of data corresponding to the image to be
rendered;

logic configured to insert pixel data from the multiple digital video data
20 streams into said frame of data such that, in response to receiving a first of the
multiple digital video data streams, said logic configured to insert pixel data inserts
the pixel data from the first of the multiple digital video data streams into a
corresponding portion of said frame of data to form at least a portion of the composite
digital video data stream.

15. The device of claim 14, wherein said logic configured to receive the multiple digital video data streams, said logic configured to provide a frame of data, and said logic configured to insert pixel data are embodied in a computer readable medium.

16. The device of claim 14, wherein the first of the multiple digital video data streams contains three-dimensional pixel data corresponding to the image to be rendered, the second of the multiple digital video data streams contains two-dimensional pixel data corresponding to the image to be rendered, and wherein said logic configured to insert pixel data is configured to combine said two-dimensional pixel data and said three-dimensional pixel data by replacing at least a portion of the pixel data provided by the second of the multiple digital video data streams with at least a portion of the pixel data provided by the first of the multiple digital video data streams.

17. The device of claim 14, further comprising:
logic configured to provide a first control signal, said first control signal containing information regarding which portion of said frame of data corresponds to the pixel data provided from the first of the multiple digital video data streams such that, in response to receiving said first control signal and the pixel data from the first of the multiple digital video data streams, said logic configured to insert pixel data inserts the pixel data from the first of the multiple digital video data streams into said corresponding portion of said frame of data to form at least a portion of the composite digital video data stream.

18. The device of claim 14, further comprising:
- logic configured to receive the composite digital video data stream; and
 - logic configured to provide an output composite video data stream, said output composite video data stream being selectively configurable as any one of an analog video data stream, an analog stereo video data stream, a digital video data stream, and a digital stereo video data stream.

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